

## Claims

- [c1] A mobile terminal comprising:
- a radio subsystem operable to receive a radio signal;
  - a ranging signal receiving subsystem for receiving terrestrial ranging signals, a terrestrial ranging signal comprising synchronization bursts which are equally spaced in time;
  - a common filter operatively connected to the radio subsystem and the ranging signal receiving subsystem, the common filter having a bandpass that is smaller than a bandwidth of the terrestrial ranging signal; and
  - a correlation subsystem operatively connected to the common filter, the correlation subsystem operable to enable recovery of the synchronization bursts by correlating the terrestrial ranging signal with a known sequence that has been predistorted to account for the bandpass of the common filter.
- [c2] The mobile terminal of claim 1 wherein the correlation subsystem correlates the terrestrial ranging signal at least in part by searching a correlation window that is determined at least in part by an approximate location of the mobile terminal within a network.
- [c3] The mobile terminal of claim 1 wherein the correlation subsystem correlates the terrestrial ranging signal at least in part by performing multiple correlations at times separated by one over a known rate of occurrence of the synchronization bursts.
- [c4] The mobile terminal of claim 1 further comprising a shared mixer operatively connected to the radio subsystem and the ranging signal receiving subsystem.
- [c5] The mobile terminal of claim 4 further comprising a shared amplifier operatively connected to the radio subsystem and the ranging signal receiving subsystem.
- [c6] The mobile terminal of claim 2 further comprising a shared mixer operatively connected to the radio subsystem and the ranging signal receiving subsystem.
- [c7] The mobile terminal of claim 6 further comprising a shared amplifier operatively connected to the radio subsystem and the ranging signal receiving subsystem.

- [c8] The mobile terminal of claim 3 further comprising a shared mixer operatively connected to the radio subsystem and the ranging signal receiving subsystem.
- [c9] The mobile terminal of claim 8 further comprising a shared amplifier operatively connected to the radio subsystem and the ranging signal receiving subsystem.
- [c10] A method of processing a terrestrial ranging signal in a mobile terminal implementing a terrestrial ranging signal receiver, the method comprising:  
receiving the terrestrial ranging signal, the terrestrial ranging signal comprising synchronization bursts which are equally spaced in time;  
passing the terrestrial ranging signal through a common filter having a bandpass that is smaller than the bandwidth of the terrestrial ranging signal, but substantially equal to or greater than the bandwidth of a native radio signal;  
and  
recovering the synchronization bursts by correlating the terrestrial ranging signal with a known sequence that has been predistorted to account for the bandpass of the common filter.
- [c11] The method of claim 10, wherein the recovering of the synchronization bursts is accomplished at least in part by searching a correlation window that is determined by an approximate location of the mobile terminal within a network.
- [c12] The method of claim 10 wherein the recovering of the synchronization bursts is accomplished at least in part by performing multiple correlations at times separated by one over a known rate of occurrence of the synchronization bursts.
- [c13] Apparatus providing mobile terminal function and terrestrial ranging signal function, the apparatus comprising:  
means for receiving a terrestrial ranging signal, the terrestrial ranging signal comprising synchronization bursts which are equally spaced in time;  
means for passing the terrestrial ranging signal through a common filter having a bandpass that is smaller than the bandwidth of the terrestrial ranging signal, but substantially equal to or greater than the bandwidth of a native radio signal;  
and

means for recovering the synchronization bursts by correlating the terrestrial ranging signal with a known sequence that has been predistorted to account for the bandpass of the common filter.

- [c14] The apparatus of claim 13 wherein the means for recovering further comprises means for searching a correlation window that is determined by an approximate location of the mobile terminal within a network.
- [c15] The apparatus of claim 13 wherein the means for recovering further comprises means for performing multiple correlations at times separated by one over a known rate of occurrence of the synchronization bursts.